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Mini neutron monitor measurements at the Neumayer III station and on the German research vessel Polarstern

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Neutron monitors (NMs) are ground-based devices to measure the variation of cosmic ray intensities. They are reliable devices but difficult to install because of their size and weight. Therefore a portable mini NM (MNM) that can be installed as an autonomous station at any location that provides suitable conditions has been developed recently. The first continuous measuring MNMs are installed at Neumayer III and the German vessel Polarstern. They are providing scientific data since October 2012 and January 2014, respectively. NM measurements are influenced by the (variable) Earth magnetic field and the atmospheric conditions. Thus in order to interpret the data a detailed knowledge of the instrument sensitivity with geomagnetic latitude (rigidity) and atmospheric pressure is essential. The rigidity dependence is determined experimentally by utilizing several latitude scans. The Polarstern was specially designed for working in the polar seas and sails usually twice a year in areas with rigidity ranges below 1 GV and above 10 GV. The results of different latitude scans from October 2012 to January 2015 will be presented and discussed in the framework of a yield function.

Collaboration

– not specified –

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